Kentucky

Agricultural Experiment Station

University of Kentucky

MARKETING KENTUCKY EGGS

BULLETIN NO. 283

Lexington, Ky.

January, 1928

EXPERIMENT STATION STAFF

BOARD OF CONTROL

Richard C. Stoll, Chairman, Lexington, Ky.
H. M. Froman, Lexington, Ky.
R. G. Gordon, Louisville, Ky.
Frank McKee, Versailles, Ky.
R. P. Ernst, Covington, Ky.

Frank L. McVey, President — Thomas P. Cooper, Dean and Director

ADMINISTRATION

T. P. Cooper, Director
D. H. Peak, Business Agent
O. L. Ginocchio, Secretary

AGRONOMY

George Roberts, Head
E. J. Kinney, Assoc. Agronomist
P. E. Karraker, Asst. Agronomist
J. F. Freeman, Asst. Agronomist
W. D. Valleau, Plant Pathologist
E. N. Fergus, Asst. Agronomist
J. B. Kelley, Agricultural Engineer
E. M. Johnson, Asst. Plant Pathologist

ANIMAL HUSBANDRY GROUP

E. S. Good, Chairman
W. S. Anderson, Horses
E. J. Wilford, Swine, Meats
W. J. Harris, Beef Cattle
J. H. Martin, Poultry
L. W. Taylor, Poultry
J. O. Barkman, Act'g in Charge Dairy Husbandry
J. W. Nutter, Dairyman
Amanda Harms, Asst. Path. Bact.
G. D. Buckner, Animal Nutrition
Harold Barber, Head Herdsman

ANIMAL PATHOLOGY

W. W. Dimock, Head, Vet. Science
Philip Edwards, Asst. Bacteriologist
F. E. Hull, Asst. Veterinarian

CHEMISTRY

J. S. McHargue, Acting Head
A. M. Peter, Chemist
S. D. Averitt, Chemist
O. M. Shedd, Chemist
W. D. Iler, Asst. Chemist
D. J. Healy, Bacteriology
E. S. Hill, Asst. Chemist

CREAMERY LICENSE SECTION

J. D. Foster, Inspector, in Charge
W. C. Eskew, Inspector

ENTOMOLOGY AND BOTANY

H. Garman, Head
Mary L. Didlake, Asst. Entomologist
H. H. Jewett, Research Asst. Entgst.
Jessie Terry,, Seed Analyst
Lucille Dobbins, Seed Analyst

FARM ECONOMICS

W. D. Nicholls, Head
W. G. Finn, Farm Management
W. L. Rouse, Farm Management
R. E. Proctor, Farm Management
*Z. L. Galloway

FEED CONTROL

J. D. Turner, Head
H. D. Spears, Chemist
W. G. Terrell, Inspector
Fred Fitschen, Inspector
L. V. Amburgey, Microscopist

FERTILIZER CONTROL

H. E. Curtis, Head
Harry Allen, Chemist
Lelah Gault, Asst. Chemist
Robert Mathews, Inspector

HOME ECONOMICS

Mariel Hopkins, Head
Statie Erikson, Asst.

HORTICULTURE

C. W. Mathews, Head
A. J. Olney, Asst.
C. S. Waltman, Asst.

MARKETS AND RURAL FINANCE

O. B. Jesness, Head
Dana G. Card, Marketing
E. C. Johnson, Marketing
K. R. Zent, Marketing

PUBLIC SERVICE LABORATORY

L. A. Brown, Head
E. J. Gott, Bacteriologist
A. L. Meader, Asst. Chemist
James H. Martin, Asst. Chemist
E. K. Borman, Bacteriologist
O. H. Pinney, Asst. Bacteriologist

ROBINSON SUBSTATION

(Quicksand, Ky.)
R. W. Jones, Superintendent
C. H. Burrage, Forester
Lula Hale, Field Worker

WESTERN KY. SUBSTATION

(Princeton, Ky.)
S. J. Lowry, Superintendent

*Assigned by the U. S. Department of Agriculture.

CONTENTS

	Page
Kentucky's Poultry Industry	8
Principal Markets for Kentucky Eggs	14
Market Agencies	17
Direct Sales by Farmers	21
Grades and Standards	24
Cold Storage Movements	28
Price Comparisons	30
Seasonal Variations	30
Price Cycles	30
Market Quotations	31
Storage Eggs and Fresh Eggs	31
Dealers' Operating Margins	32
Comparisons with Other States	33
Cooperative Marketing	34
Principal Problems in Marketing	35
Possible Improvements	37
Conclusions	39

Digitized by the Internet Archive
in 2025

https://archive.org/details/bulletin-kentucky-agricultural-experiment-station-uky_1928-01_283

BULLETIN NO. 283

Marketing Kentucky Eggs[1]

By DANA G. CARD

The geographical relationship of production and consumption areas is an important factor in marketing eggs. Probably no other farm product is produced more generally. The agricultural census for 1925 indicates that almost nine out of every ten farms in the country have chickens. About 75 percent of the farms grew corn, 57 percent raised hogs, 32 percent kept beef cattle, and cows were milked on 78 percent of the farms, in 1924. In 1919, eggs were sold from more than six out of every ten farms in the United States while more than seven out of ten farmers in Kentucky sold eggs.

It would be difficult to tell what proportion of market eggs is produced on commercial poultry farms, but during the years 1924 and 1925 about 10.5 percent of the egg receipts in New York City came from the Pacific Coast where commercial poultry farming is highly developed. In contrast, about 55 percent came from Midwestern States, west of Ohio, where most poultry is kept as a part of general farming activity. The farms of this area have large flocks, however. In 1925 the average flock in Illinois was 114 birds and that of Missouri, 108 birds. The average number of chickens per farm in Kentucky was 43 in 1925. Production of eggs in this State, above the amount required for home consumption, is not large and the number available for sale at any one time is small. This is an important consideration from the standpoint of bringing about any improvement in marketing methods because the volume available for

[1] See also Ky. Agr. Exp. Sta. Bul. No. 285, "Marketing Kentucky Poultry."

sale by each farmer may seem of relatively little importance to him.

The wide distribution of egg production does not coincide with the geographical distribution of population. The areas of deficit production are the large cities and to a limited extent the smaller towns. The market movement of eggs, therefore, is one of gradual concentration from many points of production to comparatively few points of major consumption. This movement may be contrasted with that of raisins or oranges which are produced in limited areas of specialized production but which are distributed to many points of consumption.

The natural seasonal production of eggs is well known. Adjustments of supply to consumption are made by holding eggs in cold storage and thru breeding and feeding practices. In 1866 one-fourth of one percent[2] of New York receipts arrived in January but in the years 1921 to 1925, five percent of the receipts arrived in that month. A similar comparison for the month of May shows a decrease from 18 percent to 14 percent and for December, an increase from 2 percent to 4 percent. In spite of these adjustments, however, the demand for strictly fresh eggs results in decidedly seasonal movements of egg prices.

The primary factors affecting the quality of eggs after they are laid are temperature, odors, cleanliness and time. Quality is of great importance in marketing eggs. Eggs never improve in quality after they are laid altho breeding for size, shape and color and feeding for interior quality and shell consistency have some influence on the condition of eggs when laid. High temperatures result in excessive evaporation thru the shell and usually favor the action of bacteria. Heat causes the germ cell in fertile eggs to develop and they soon become inedible. Cool temperatures, preferably below 60 degrees Fahrenheit, slow up evaporation, retard germ and bacterial development and have been found most favorable for keeping eggs.

Whether the demand for eggs is increasing, decreasing, constant or affected by seasonal variations, is an important consideration in marketing. The per capita production of eggs in

[2] U. S. D. A. Yearbook 1924, page 385.

the continental United States has nearly doubled in the last forty-five years. In 1879 the per capita production[3] of eggs was approximately 9.4 dozen compared with 16.6 dozen in 1925. The per capita production of eggs in successive census years was approximately 13.3 dozen in 1889; 17.3 dozen in 1899; 17.5 dozen in 1909, and 15.8 dozen in 1919. The per capita consumption of eggs in recent years, as given by the U. S. Department of Agriculture, was 14.6 dozen in 1920; 16.5 dozen in 1921; 16.9 dozen in 1922 and 18.6 dozen in 1923.[4] Altho low in 1920, the production of eggs increased 15.7 percent from 1920 to 1925 while population in the United States increased 6.4 per cent.

The long-time trend of demand for eggs is indicated by their relative purchasing power over a period of years. The trend of the purchasing power of Western fresh eggs in New York City[5] indicates an increase of purchasing power from 88 in 1875 to 95 or 96 in 1924. The increase in relative demand was more rapid before 1902 than since that time.

Egg consumption, as indicated by the apparent trade output, is much less seasonal in nature than are receipts. A definite seasonal tendency is shown, however, see figure II. This might be a natural result of seasonal price changes but is somewhat independent of them. October, November and December are months of relatively large consumption and also of relatively high prices. In March and April consumption is high while prices usually are lower than in the winter months. In the late spring and early summer consumption is small and prices are low.

Apparently Easter affects egg consumption somewhat, especially when it occurs early in the Spring. During the five years, 1923 to 1927, the average trade output in five important markets during the weeks immediately preceding and following Easter was as follows:

---

[3] U. S. Census production figures. Population estimates from the 1925 Statistical Abstract.

[4] Agricultural Outlook for 1924—Miscellaneous Circular No. 23.

[5] Farm Economics No. 22, March 21, 1925, N. Y. State College of Agriculture. Straight line trend, drawn by inspection.

	Average trade output
Third week preceding Easter	350,000 cases
Second week preceding Easter	423,000 cases
First week preceding Easter	364,000 cases
First week following Easter	252,000 cases
Average weekly output for the months of March and April	330,000 cases

The dates on which Easter occurred are, April 1, 1923; April 20, 1924; April 12, 1925; April 4, 1926; April 17, 1927.

KENTUCKY'S POULTRY INDUSTRY

In 1919, according to the United States census, Kentucky poultry products were valued at over 26 million dollars. In 1924 they were valued at nearly 23 million dollars. In the same year about 37 million dozen eggs were produced in the State.

The ten and one-half million chickens on farms in Kentucky on January 1, 1920, were about 2.9 percent of all chickens on farms in the United States. At the same time 4.6 percent of the country's turkeys were on farms in Kentucky. On most farms poultry is kept as a part of general farm activities and receipts from the sale of poultry products are distributed thruout the year. Frequently groceries and household supplies are secured in exchange for eggs and their value is not fully appreciated by the farmers who sell them. In 1919 the value of poultry products in Kentucky was nearly $100 per farm altho sales amounted to less than half that amount.

The production of eggs per chicken on farms and the value of poultry products per farm were less in Kentucky than in the United States as a whole, in both 1919 and 1924. The number of chickens per farm, also, was lower than in the United States. Only eleven states had fewer chickens per farm than Kentucky. Such comparisons suggest the possibility of increasing Kentucky's poultry industry.

The 1925 agricultural census indicates a 5.3 percent increase in the number of chickens on farms in Kentucky between 1920 and 1925. From United States estimates by districts,[6] the percentage changes since 1919 have been applied to Kentucky

[6] February, 1925, Supplement of Crops & Markets. Similar data for 1926 and 1927 not available.

in Table II. Census data are used for the years for which they are available.

TABLE I.—Chickens and Turkeys on Farms in Kentucky and Percentage of United States Total.

(1890-1925)

Census Date	Chickens on Farms		Turkeys on Farms	
	Kentucky	% of U. S. Total	Kentucky	% of U. S. Total
1925 (Jan. 1)	11,035,942	2.7	.....	.....
1920 (Jan. 1)	10,477,598	2.9	168.326	4.6
1910 (Apr. 15)	8,000,457	2.8	188,292	5.1
1900 (June 1)	6,849,079	2.9	279,749	4.2
1890 (June 1)	12,740,559	4.9	672,106	6.2

TABLE II.—Estimated Number of Chickens Raised and Eggs Produced in Kentucky.

(1919-1925)

Year	Chickens Raised		Chicken Eggs Produced		Chickens on Hand Jan. 1	
	Number	% Increase[1] or Decrease from Previous Year	Dozen	% Increase or Decrease from Previous Year	Number	% Increase or Decrease from Previous Year
1925[2]	17,103,237	+4.00	37,415,008	+1.00	11,035,942	—12.6
1924[3]	16,445,420	—20.56	37,044,562	—27.2	12,627,747	+13.63
1923	20,700,448	+13.76	50,889,827	+13.63	11,113,040	—4.85
1922	18,196,596	—.08	44,785,556	—4.85	11,679,496	+17.19
1921	18,211,165	+18.53	47,068,372	+17.19	9,966,291	—4.88
1920	15,364,182	—.92	40,164,154	—4.88	10,477,598	.....
1919	15,506,845	.....	42,224,720	.....	.....	.....

[1] Percent increase or decrease as given by the U. S. Division of Crop and Livestock Estimates for the South Central States. Data from the 1920 census are used for that year.

[2] Exactly comparable data for chickens raised and eggs produced in 1925 not available. Chickens on hand Jan. 1, 1925, from U. S. Census of that year.

[3] Chickens raised and eggs produced in 1924 from 1925 census.

Fig. I. Receipts per farm from the sale of chickens and eggs in 1919. (U. S. Census.)

The varied types of agriculture in Kentucky suggest a statistical study of the poultry industry of the State by districts, according to the type of farming. In a study of Kentucky's Agriculture made in another connection the State has been divided into six major divisions,[7] see Figure I.

In the Mountain area of 34 counties in eastern Kentucky (No. 1), agriculture approaches the self-sufficing type. Cash income from the farm is very limited and practically no poultry products are shipped out of the area. Coal mining villages are supplied quite largely with poultry products, dairy products and meat from packing-house centers.

The 38 counties making up the North Central Region (No. 2) include the Bluegrass Region of Kentucky where much farm land is owned in comparatively large tracts, operated by several tenants (thus being counted as several farms in the census) and a number of counties bordering the Ohio River where dairying and a deversified type of agriculture are carried on.

The West Central Region of 21 counties (No. 3) and the Southwestern Region of 10 counties (No. 5) make up areas of the State as their names indicate. Farm lands in these regions are less fertile than in Central Kentucky. In the West Central Region particularly, transportation facilities are quite inadequate.

The Western Coal Field of 9 counties (No. 4) has some good farm land and coal mining offers a ready alternative to agricultural occupation thruout the area.

The Jackson Purchase Area of 8 counties (No. 6) in the extreme western part of the State is made up largely of comparatively small farms and has fewer chickens per farm than any other section of the State.

A statistical comparison of these regions is made in Table III. In the Mountain area and the West Central area the receipts from the sale of poultry form a much larger proportion of gross farm receipts than in other parts of the State. Production per chicken on farms varies slightly between the districts but the size of flock varies from an average of 32 birds in the Purchase

[7] From unpublished data by the author.

Region to 47 birds in the North Central Regions. The number of chickens on farms in 1920, per hundred acres of farm land, varied from about 38 in the Southwestern district to 63 in the North Central district, with a state average of about 48 birds for each hundred acres of farm land.

TABLE III.—Poultry Statistics by Districts in Kentucky. (From 1920 Census)

District	No. of Counties	No. of Farms	No. Chickens on Farms Jan. 1, 1920		No. Chickens Raised in 1919 (as reported)		Per Chicken on Hand Jan. 1, 1920	No. Chickens for Each 100 Acres in Farms
			Total	Per Farm	Total	Per Farm		
Mountain	34	71,543	2,301,248	32	2,535,529	35.4	1.1	39
North Central	38	73,374	3,472,081	47	4,446,285	60.6	1.3	63
West Central	21	51,049	2,136,258	42	2,613,492	51.2	1.2	49
Western Coal	9	25,856	957,185	37	1,471,574	56.9	1.6	46
South Western	10	26,678	907,657	34	1,216,512	45.6	1.3	38
Purchase	8	22,126	703,169	32	1,044,072	47.2	1.5	51
State	120	270,626	10,477,598	39	13,327,464	49.2	1.3	48

TABLE III.—Continued.

District	Receipts from the Sale of Poultry and Eggs			Ratio, Receipts from Poultry to Gross Farm Receipts[1]
	Total	Per Farm	Per Chicken on Hand Jan. 1, 1920	
Mountain	$2,412,961	$33.73	$1.05—	15.2%
North Central	3,658,183	49.86	1.05+	4.5%
West Central	2,861,071	56.05	1.34	11.6%
Western Coal	1,112,006	43.01	1.16	6.8%
South Western	1,060,183	39.74	1.17	5.0%
Purchase	759,167	34.31	1.08	4.9%
State	$11,863,571	$43.84	$1.13	6.8%

[1] From unpublished data by the author.

TABLE III.—Continued.

District	Eggs Produced in 1919 (as reported) (dozen)			Eggs Sold in 1919 (dozen)				Average Size of Farms (Acres)
	Total	Per Farm	Per Chicken on Hand Jan. 1, 1920	Total	Per Farm	Per Chicken on Hand Jan. 1, 1920	Percent of Eggs Sold	
Mountain	8,567,136	119.7	3.7	5,352,907	74.8	2.3	62.5	82.4
North Central	13,157,694	179.3	3.8	8,155,043	111.1	2.3	62.0	75.4
West Central	8,587,415	168.2	4.0	6,097,378	119.4	2.9	71.0	85.6
Western Coal	3,763,752	145.6	3.9	2,181,783	84.4	2.3	58.0	80.5
South Western	3,722,597	139.5	4.1	2,295,658	86.1	2.6	61.7	88.3
Purchase	2,778,445	125.6	4.0	1,548,795	70.0	2.2	55.7	62.0
State	40,577,039	149.9	3.9	25,631,564	94.7	2.4	63.2	79.9

TABLE IV.—Size of Farms, Chickens Per Farm and Chickens Per 100 Acres of Land by Districts—Compared with the State Acreage. (1920 Census)

District	Percent Above or Below the Average for the State		
	Size of Farms	Chickens Per Farm	Chickens Per 100 Acres Land
Southwestern	+10.5%	—12.1%	—20.6%
West Central	+7.1%	+8.0%	+0.6%
Mountain	+3.1%	—16.8%	—19.6%
Western Coal	+0.8%	—4.4%	—5.2%
North Central	—5.6%	+22.2%	+29.3%
Purchase	—22.4%	—17.8%	+5.8%

From Table IV it will be seen that the number of birds per farm is more dependent upon the type of farming than upon the size of farms. The North Central Region, with farms nearly 6 percent below the average in size, has 22 percent more than the average number of chickens per farm, while the Southwestern Region, with farms over 10 percent above the average in size, has 12 percent less than the average number of chickens

per farm. There is some tendency for farm flocks to keep within certain size limits, as will be noted by the density of poultry population per 100 acres of land in farms. The areas with larger farms tend to have fewer chickens in proportion to the amount of land in farms than do those areas with small farms.

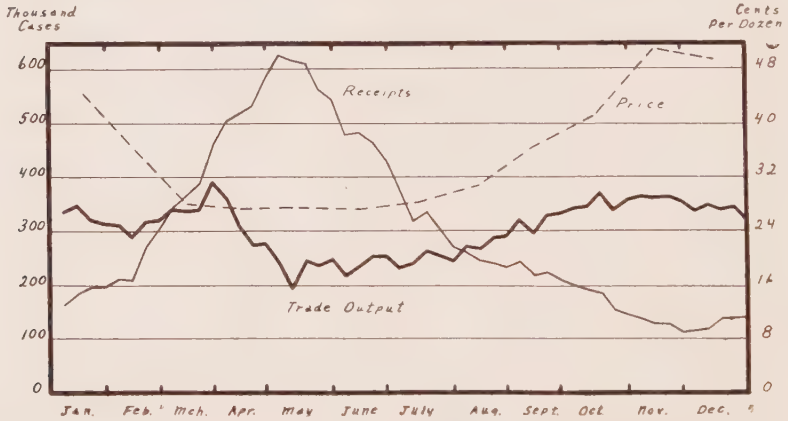

Fig. II. Egg receipts and trade output at five important markets (1923-1927 average) and the monthly price of Fresh Firsts at New York City. (Five markets, New York, Philadelphia, Boston, Chicago and San Francisco. Crops and Markets.)

PRINCIPAL MARKETS FOR KENTUCKY EGGS

If Kentucky people eat as many eggs as the average for the United States as a whole, approximately 90 percent of Kentucky's eggs are consumed within the State. Doubtless, much more than 10 percent of the eggs are shipped out of the State, however, and others are brought in during the slack season of production. In the four years, 1922 to 1925, the receipts of Kentucky eggs at New York City alone were 381,000 cases or 6.7 percent of the State's production during that period.

The principal city markets within the State are Louisville, with a population of 300,000, Covington and Newport in the Cincinnati area, with a total population of 88,000, Lexington, with 47,000 people and Paducah with 26,000. Just outside of the State to the north is Cincinnati, with 409,000 people, and Nashville, with 136,000, is just to the south.

In eastern Kentucky, according to the 1925 report of the State Department of Mines, there were 472 coal mines, employing over 42,000 men. Many of the mining companies have commissary departments thru which most of the groceries and other supplies for their employees are handled. Letters and questionnaires were sent to 86 of the largest companies and 32 usable replies covering the annual purchase of nearly 13,000 cases of eggs were received. Ninety-three percent of these eggs were reported as being shipped in from outside of the Eastern Kentucky Coal Field, while only seven-tenths of one percent were reported as being purchased from farmers in the immediate locality. Very few eggs are bought by miners directly from local farmers. Ten of the 32 companies replied that they handled all the eggs purchased by their employees and 9 reported handling 90 percent or more.

Of the eggs handled by the 32 commissary departments, 46.3 percent were bought from packing companies, mostly in St. Louis, 48.8 percent from produce dealers, 3.1 percent from country merchants and 1.8 percent were bought directly from farmers. The large proportion bought from packing companies is not surprising when it is considered that meat, lard, canned goods and other provisions are shipped into eastern Kentucky in refrigerator cars and that eggs may be included in these mixed shipments.

None of the companies bought eggs in carlots. Twelve reported buying eggs in lots of 6 cases or less, 1 bought in lots of 6 to 10 cases, and 3 bought in lots of 10 cases. Twenty of the 32 companies reported buying graded eggs and two others reported that their eggs were candled prior to purchase.

It is of interest to note that 1.8 percent of the eggs purchased by the coal companies were bought directly from farmers but only 0.7 of one percent were bought in the immediate locality of the mine. It appears that approximately 1 percent of the eggs are bought from farmers who ship to the commissary departments. There should be an opportunity of increasing this percentage and developing a market in eastern Kentucky for farmers living in other parts of the State.

The 42,000 mine employees and their families are equivalent to a city of about 200,000 population which would rank second only to Louisville in the State. Monthly average prices paid by customers were reported by some of the companies. The unweighted average price at which eggs were sold by eight commissary departments in January, February and March, 1923, was 48.5c per dozen. The average wholesale price of Fresh Firsts in New York City for the same period was 37c per dozen. During the last nine months of 1923, thirteen commissaries sold eggs at an average of 42c per dozen. The New York price for this period was 34c per dozen. Probably Kentucky producers could allow the commissary a good margin for handling the eggs and still do better than by shipping to New York City.

The opportunity open to Kentucky farmers in selling eggs directly to mining companies in eastern Kentucky is limited by their ability to establish satisfactory connections with the commissary departments and to equal the service which these companies now are receiving from others in supplying poultry products.

Other Markets. During the four years, 1922 to 1925, New York City received an average of 95,500 cases of eggs per year from Kentucky. It is the most important single market outside of the State, for Kentucky eggs. The average distribution of the receipts at New York by months is shown in Figure III. The distribution of total egg receipts, also, is shown and the percentage of the total which Kentucky supplies. The percentage of total receipts which came from Kentucky is indicated by the dotted line.

From the figure it may be noted that during the months of February, March and April about 61 percent of the year's receipts from Kentucky arrived at New York City. During the same months only about 35 percent of all receipts arrived at that market. The peaks of receipts from Kentucky and total receipts both came in April, about 25 percent of Kentucky's receipts arriving then but less than 16 percent of all receipts arriving in that month. The spring movement of eggs from Kentucky started earlier than from the country as a whole, however.

This offers a marketing advantage to Kentucky poultrymen, but in the four years studied it was more than offset by proportionately small receipts from Kentucky during the late fall months when prices were high.

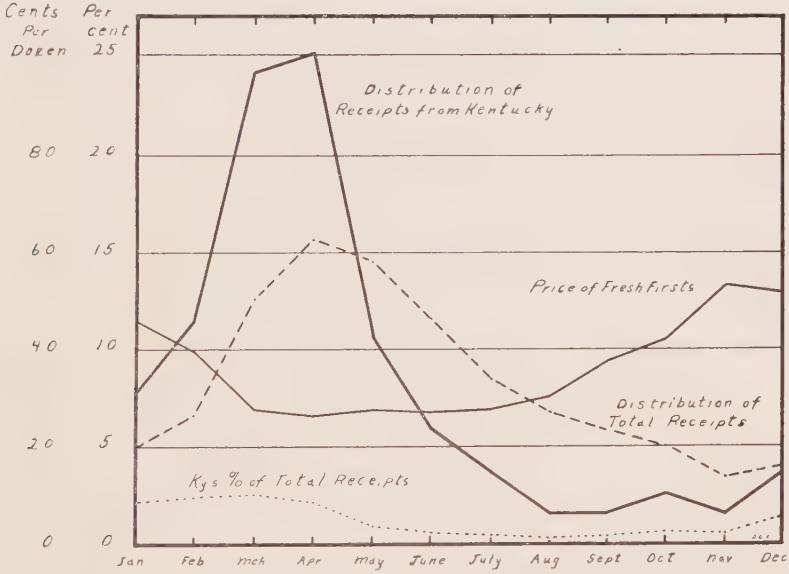

Fig. III. Percentage distribution of total egg receipts and receipts from Kentucky at New York City; percentage of total receipts coming from Kentucky and the wholesale price of Fresh Firsts (1922-1925 average.)

MARKET AGENCIES

The market channels thru which eggs pass most commonly consist of local dealers, dealers who act as concentration agents in making up carlot shipments, wholesale receivers, jobbers and retailers in large market centers. Auction sales organizations and cold storage companies also enter into the marketing process.

Hucksters. Districts at considerable distances from town sometimes are served by hucksters who drive from farm to farm buying eggs, poultry, hides, etc., and frequently selling household supplies. Eggs purchased in this way seldom are of high quality

because of lack of care on the farms and the inconvenience for hucksters to candle and grade them. This method of selling eggs is becoming less customary than formerly.

Merchants. Approximately 16,000 cases of eggs are handled annually by the twenty-nine Kentucky stores which were visited in a survey of egg marketing methods. Of these about 44 per cent were purchased in exchange for groceries and other supplies and the remaining 56 percent were paid for in cash. Some merchants encourage trading at their stores by paying a cent a dozen more for eggs in trade than in cash. A few make a differential of two cents per dozen.

All the twenty-nine stores visited, received eggs from farmers who deliver them in baskets, buckets and various containers not suitable for the purpose. Thirteen stores reported the use of standard egg cases and two others reported the use of 12 and 15-dozen egg cases. Eggs are received about once a week by most of the stores but there is a tendancy for deliveries to slow up in the fall of the year when prices normally are rising.

At the time the field work in this study was done it is likely that less than half of Kentucky's merchants candled eggs. State candling regulations were not enforced strictly so few direct questions relative to egg candling were asked of the merchants visited. Those who volunteered information stated that from 1 percent to 12 percent of the eggs received in summer months were unfit for food. Eleven out of twenty-nine merchants indicated that egg candling regulations were of real help in improving the quality of eggs delivered to them, eight thought some benefit might be derived from such regulations while others thought them to be of little or no value. No grading, other than the rejection of eggs unfit for food, is attempted by any of the stores. The eggs usually are accepted as "case count," giving little incentive for farmers to produce high-grade eggs or to care for them properly. Merchants hesitate to candle or grade eggs for fear of offending customers and losing their trade.

Produce Dealers. The forty-two produce dealers visited in a survey of Kentucky egg marketing, handled approximately 530,000 cases of eggs annually or over 1300 carloads. Of this

number about 18.3 percent were purchased directly from producers, 19.2 percent from hucksters and 62.5 percent from merchants. Some of the eggs purchased from hucksters previously had passed thru the hands of local merchants. The territory served by each of the dealers varied in size from five miles in diameter to between 150 and 200 miles in diameter, the latter being served by agents and truck or express service. Large produce firms with numerous branch houses cover even more extensive areas.

None of the dealers reported deliveries of eggs from farms or stores less frequently than once each week and twenty-two reported deliveries more than once a week. Dealers apparently experience less difficulty in securing prompt deliveries than storekeepers do. Twelve of the dealers visited use their own trucks in collecting eggs from local merchants and branch houses while twenty-nine receive most of their eggs from farmers, storekeepers and hucksters who deliver them. One dealer reported receiving eggs shipped by express.

Local produce dealers usually handle eggs in sufficiently large amounts to justify grading and careful packing. Twenty-seven out of the 42 dealers visited, grade eggs for sale at least part of the year. Two others are operating branch houses and the eggs are graded upon receipt at the central plant. The grades in use vary considerably, however, and emphasize the need for standard grades.

Only one dealer out of the 42 visited had made an attempt to buy eggs on the basis of grade altho most of them recognize the importance of it. Being one of the largest dealers in Kentucky, he tried buying eggs on grade several years ago, making a differential in price of three cents per dozen between "firsts" and "seconds." The practice was followed for nearly a year and then abandoned because of competition. The manager of the firm said that the abandonment of the practice of buying on grade was "the greatest mistake this firm has ever made."

The markets to which Kentucky dealers ship eggs include New York City, Philadelphia, Boston, Cleveland, Pittsburgh, Chicago, Cincinnati, Louisville, Nashville, and southern cities

such as New Orleans and Miami, Florida. Ten dealers reported shipments to southern markets, especially in the summer. These markets furnish good outlets for Kentucky producers who will furnish eggs of sufficiently good quality to be shipped south.

Central Markets. Marketing functions performed in central markets consist chiefly of receiving eggs from country points and distributing them to retail outlets. This is accomplished by wholesale receivers, auction sale companies, jobbers and retailers. The storing of eggs also is an important function carried on in central markets. Six produce dealers located in Louisville and Cincinnati were interviewed. One dealer in Louisville bought eggs on grade and made up a special brand of carton eggs weighing about 27 ounces to the dozen, for local trade. Altho the eggs purchased were about half white and half brown, practically all the special carton eggs were brown, the white eggs being too small in size. It is a common complaint among the produce dealers of Kentucky that Leghorn eggs do not hold up in size. A differential of 10 to 15 percent in buying price is made when eggs are graded for purchase by this dealer.

In New York, according to the manager of one firm, Kentucky eggs sell at a disadvantage when compared with other western eggs. He has been requested by New York dealers to leave the candling slips out of cases in order that they may not show where the eggs are from. Another firm reports the price at one of its branch houses in Indiana to be three cents above the price at any Kentucky branch house because of the better quality product in Indiana. The farm price of eggs in Indiana average 1.9 cents per dozen higher than the Kentucky farm price during the five years, 1923 to 1927. If Kentucky produce is discriminated against on eastern markets it is a handicap which can be overcome only by exceptionally high quality. Cincinnati firms report poorer quality of eggs from Kentucky than from Indiana and Ohio.

The importance of Florida winter resorts as a market for Kentucky eggs was stressed by these firms. The buying prices on the day when one firm was visited, were firsts 20c, seconds 18c

and checks 12c. At the same time eggs in Florida were about 43c per dozen. It costs 4½ to 5c per dozen to ship eggs from Louisville to Palm Beach. This is an unusual spread but indicates the possibilities involved.

DIRECT SALES BY FARMERS

A few poultrymen choose to locate special market outlets for their eggs. Those living near towns can do this by house to house canvass and delivery, while others may make use of parcel

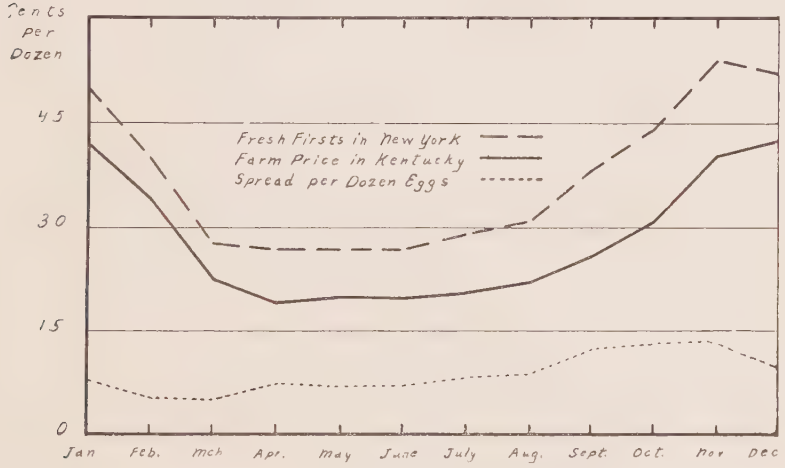

Fig. IV. Seasonal spread between the Kentucky farm price of eggs and the wholesale price of Fresh Firsts in New York City (1921-1925 average.)

post. Some may sell directly to hotels and restaurants and others can ship to central market dealers. Comparatively few farmers in Kentucky follow any of these practices, however.

Express Shipments to Wholesale Dealers. Letters and questionnaires mailed to producers in twenty-five counties of Kentucky brought 21 usable replies. Seventeen of these people shipped approximately 1384 cases of eggs directly to central markets during 1924. All but three of the replies indicated that express shipments were made, two reported the use of parcel post, one failed to report the means of transportation and two

shipped by truck as well as by express. Of those who made more than occasional shipments of eggs, 8 shipped the year around, and one all the year except April and May. Seven others shipped part of the time between August and January. The margins between local and central market prices are largest in the fall of the year, see Figure IV.

Sixteen of the 21 producers reported shipments to New York City or other eastern markets, one shipped to Chicago and four shipped to nearby markets. Three individuals reported express shipments to Miami, Florida. Those persons who sell eggs by direct shipments plan to sell most of their eggs that way, keeping the small and dirty eggs for local trade.

Very little loss from breakage was reported by the shippers altho one lady living twelve miles from the express office reported that breakage in parcel post shipments more than offset the savings made. Returns were received, in most cases, a week or ten days after the shipments were made.

From a comparison of local prices and returns for eggs shipped to central markets, net gains above transportation and other costs were estimated. Four of the sixteen shippers making estimates, reported five cents per dozen or less. Nine reported gains ranging from six to sixteen cents per dozen and three reported gains between five and forty cents per dozen, depending upon the time of year. Those reporting the most satisfactory returns shipped eggs in winter months only. Probably the eggs shipped were of higher quality than those sold locally, thus improving their showing in price comparisons.

Persons who have a sufficient supply of good quality eggs and will care for them properly, may make a considerable saving by locating market outlets thru express shipments to central markets.

Sales to Consumers. Direct sales to consumers by house delivery or thru the aid of parcel post usually have not proved satisfactory. Difficulties are experienced in locating customers, making collections, fitting deliveries to consumer demand, adjustment of losses and the like. Many of these inconveniences and difficulties might be eliminated and most of the advantages re-

tained if direct sales could be made to high-class hotels and restaurants.

Sales to Hotels or Restaurants. Letters were sent to some of the leading hotels and restaurants in Louisville and Cincinnati in order to get a view of the buyers' side of such a plan of direct marketing. The contents of replies may be summed up as follows:

"The average hotel of today is not equipped with the proper storing space to handle any large quantity of products . . . no larger quantity than daily menus necessitate. Of course, we are very anxious to get the best the market affords in fancy products, vegetables, eggs, etc., but in order to do so, the steward must arrive at market in the small hours of the morning and barter with hundreds of farmers who are trying their best to outdo him. These people are cash accounts and will not make any shortage or underweight good once you have accepted them.

"As some seven hundred different items have to be bought for the hotel weekly, it is impossible for the steward to spend too much time for such small commodities. The produce merchants are familiar with each and every local producer and are on the field to buy the best of his merchandise, consequently I feel much safer in buying thru these people, allowing them a moderate profit, and also letting them carry the losses of over-buying. Of course we encourage competition between these men.

"You ask if our wants are uniform to anticipate in advance the shipment of eggs. A good example would be to mention that today we received notice of three parties, none of which is under 500 people, to be served today and tomorrow. Our business fluctuates to such an extent that on certain days we have four times the normal business.

"I should say that the produce companies have solved all the difficulties as far as the hotel is concerned by carrying a varied stock, making prompt deliveries, first-class buyers, and real methods of business."

Another letter says, "We prefer to buy from the produce dealers here. It is necessary for us to have graded chickens, we must be certain of eggs and milk. This can not be done directly . . . We would have to wait for farmers to come in and deliver, which is most uncertain. We have agreed to buy a lot of chickens, eggs and turkeys a number of times and delivery was not made at all, or a day late. We do not handle live poultry at all, and friers must be as near one size as possible. We consider buying from dealers of more advantage, for we can nearly always get what we want, just when wanted.

"If we have an unusual crowd, unexpectedly, as we sometimes do, we can get all we need in a few moments, by phone. As to price, we pay no more, for the few farmers who deliver to us demand the same as we pay the dealers. We have always been able to get perfectly fresh eggs, altho price might be high."

Roadside Markets. Roadside marketing has not developed extensively in Kentucky. In parts of the State where automo-

bile traffic is heavy, especially near Louisville and Cincinnati, roadside marketing is increasing. Eggs sometimes are sold by merely putting out a sign where it can be seen easily by motorists. One poultryman located about ten miles from Cincinnati stated that he and his wife have built up a trade for about two-thirds of their eggs with regular customers in this way. This is a market opportunity for producers living on improved highways near cities or large towns.

GRADES AND STANDARDS

Eggs are no exception to the rule that uniform, well-graded products sell to better advantage than mixed goods. Transportation and handling costs are reduced by careful grading and packing, and expenses of storing eggs are lowered by putting into storage only those eggs which are suitable.

A lack of uniformity exists in the egg grades and grade terminology used in various markets. Standard grades for a number of farm products have been established by the Federal Government and tentative grades for eggs have been suggested.

Three sets of grades have been suggested. One set is for the wholesale trade, one for the retail trade and one for country buyers. The buying grades are the least complex and are of greatest interest to Kentucky producers and dealers. Grade requirements deal with the size of egg, condition of shell, air cell, yolk, white and germ development. Color is not considered as a grade requirement but classification within the grades should be made according to color.

TENTATIVE U. S. BUYING GRADES FOR EGGS.[8]
(October, 1925.)

U. S. Extras

Average weight. 24 ounces net per dozen with a minimum at the rate of 22 ounces for individual eggs.
Shell. Clean, sound.
Air Cell. Depth of 2/8 inch or less; localized, regular.
Yolk. May be visible.
White. Firm and clear.
Germ. No visible development.

U. S. Standards

Average weight. 24 ounces net per dozen with a minimum at the rate of 22 ounces for individual eggs.
Shell. Practically clean; sound.
Air Cell. Depth of 3/8 inch or less; localized, may be slightly tremulous.
Yolk. May be visible; mobile.
White. Reasonably firm.
Germ. Development may be slightly visible.

U. S. Trades

Average weight. 22 ounces net per dozen with a minimum at the rate of 18 ounces for individual eggs.
Shell. Clean or dirty; sound.
Air Cell. Depth may be over 3/8 inch; may be bubbly or freely mobile.
Yolk. May be plainly visible; freely mobile.
White. May be weak and watery.
Germ. Development may be clearly visible but no blood showing.

U. S. Checks and Cracks

Average weight. No specified or minimum weight required.
Shell. Clean or dirty; checked or cracked but not leaking.
Condition of air cell, yolk, white and germ same as permitted in the grade of trades.

The U. S. Buying Grades are intended for use in the purchase of eggs by storekepeers, local egg buyers and other agencies who handle or purchase eggs from producers on a quality basis.

Kentucky Egg Candling Regulations. Early in 1922 an act was passed by the Kentucky legislature which provided: "That between May 15 of each year and January 15 of the following year, no person, firm or corporation engaged in the buying and selling of eggs, shall buy or sell eggs without candling them, and no payment either in cash or merchandise shall be made for those unfit for food."

[8] Egg Standardization Leaflet No. 2, U. S. Dept. of Agr., Bureau of Agricultural Economics, October 3, 1925.

No funds were appropriated to pay for the enforcement of this law so it was not as effective as it otherwise might have been. Thru the cooperation of a number of the larger dealers in the State some inspection and enforcement work was carried on. Supervision of the work was placed with the Kentucky State Board of Health. A report[9] of the work shows that inspections in 1924 covered the handling of approximately 13,000 cases of eggs. Of these 2.6% were found to be inedible. Laxity on the part of dealers in observing the egg candling law is apparent from the fact that from 739 inspections, 264 handlers, or nearly 36%, were found to be violating the law.

The percentages of inedible eggs found by inspection were:

	1924	1925
June		5.58%
July	6.2%	5.81%
August	4.2%	3.49%
September	3.7%	2.48%
October	2.03%	1.39%
November	1.2%	
December	1.5%	
January		.4%

In March, 1926, a revised egg candling law was approved by the State legislature as follows:

Section 1. No person, firm or corporation shall sell, offer or expose for sale, or traffic in, any egg unfit for human food, unless the same is broken in shell and then denatured so that it can not be used for human food. For the purpose of this act, an egg shall be deemed unfit for human food if it be addled or moldy, a black rot, a white rot, or a blood ring, or if it has an adherent yolk, or a bloody or green white; or if it be incubated beyond the blood ring stage; or if it consists in whole or in part of a filthy, decomposed or putrid substance.

Section 2. Between May 15th of each year and January 15th of the following year, no person, firm or corporation shall, in buying or selling eggs, take or give a greater or less dockage for eggs unfit for food as defined in section 1 of this act than the actual dockage which has been determined by the careful candling of the eggs so purchased or sold, and said person, firm or corporation shall keep such candling records as may be required by the rules and regulations. All such records shall be open at all times reasonable for examination by the State Board of Health or its official representative.

Section 3. The term, "candling," as used herein, shall be construed to mean the careful examination, in a partially dark room or place, of the whole egg by means of a strong light, covered by an opaque container or shield having not more than two apertures, each

[9] Furnished by Mrs. Sarah Vance Dugan. Director of the Bureau of Foods, Drugs and Hotels, State Board of Health, Louisville, Kentucky.

aperture not to exceed one and one-quarter inch in diameter nor be less than one-half inch in diameter, before which eggs may and shall be rotated in order that the interior qualtiy of each egg may be accurately determined. Every person, firm or corporation engaged in the business of buying eggs in this state for resale or consignment, shall provide and maintain an adequate place for the accurate candling of eggs and a suitable place for the proper handling of eggs which are intended to be used for human food.

Section 4. Thirty days after this act takes effect, and on or before the first day of April annually thereafter, no person, firm or corporation shall engage in the business of buying, selling, dealing in or trading in eggs, except those retailers who buy direct from certified dealers only and who do not sell in lots greater than five cases, without first obtaining from the State Board of Health a certificate to conduct such business. Said board, upon receipt of proper application upon forms such as may be prescribed, accompanied by an annual fee of two dollars ($2.00), shall thereupon issue to such persons, firms or corporations that shall engage in the business of buying, selling, dealing in or trading in eggs in lots of less than one carload an annual certificate to engage in such business; and said board, upon receipt of a proper application upon forms such as may be prescribed, accompanied by a fee of ten dollars ($10.00), shall thereupon issue to such persons, firms or corporations that shall engage in the business of buying, selling, dealing in or trading in eggs in lots of one carload or more, an annual certificate to engage in such business. Provided, that any person, firm or corporation operating more than one place of business where eggs are bought, shall procure a certificate for each such place of business. All such certificates shall expire at the close of business on March 31st of each year. All fees collected under this act shall be paid into the State Treasury and kept as a separate fund and used for paying the expenses of the administration and enforcement of this act and shall be accounted for as required by law for other funds and expenses of the board.

Section 5. The State Board of Health shall enforce the provisions of this act and shall make suitable rules and regulations for carrying out its provisions. These regulations shall also determine the conditions under which eggs previously candled shall be re-candled before sale, in order to safeguard the purchaser against buying such eggs as are unfit for human food, which may be contained in such lots.

Section 6. Any person, firm or corporation failing to comply with the requirements of, or violating any of the provisions of this act, shall be guilty of a misdemeanor, and shall, upon conviction, be fined not less than $10.00 nor more than $50.00, for the first offense; and not less than $25.00 or more than $50.00 for each subsequent offense and his certificate may also be revoked by order of the court upon conviction of a third or subsequent offense. Should any person, firm or corporation be convicted of buying or trading in eggs after the date on which his certificate was ordered to be revoked, the offender shall be punished by a fine of one hundred dollars for each offense.

Section 7. The words used in this act shall be construed to import the plural or singular, as the case demands.

Section 8. That all laws and parts of laws in conflict with the provisions of this act be and are hereby repealed.

Section 9. That this act shall be in force and effect upon its passage and approval.

Approved March 23, 1926.

Most of the larger dealers in the State recognize the value of the egg candling law and are anxious to see it adequately enforced. Nineteen of the forty-two dealers visited reported that the law has been very beneficial in improving egg quality. Nineteen others recognize some benefit from it while three feel that the law has been of little effect. Some dealers reported decided improvement of egg quality in districts where enforcement and inspection work has been conducted.

COLD STORAGE MOVEMENTS

The normal seasonal movement of cold storage eggs starts with an accumulation of stocks beginning in March, increasing rapidly in April and May and continuing more slowly thru June

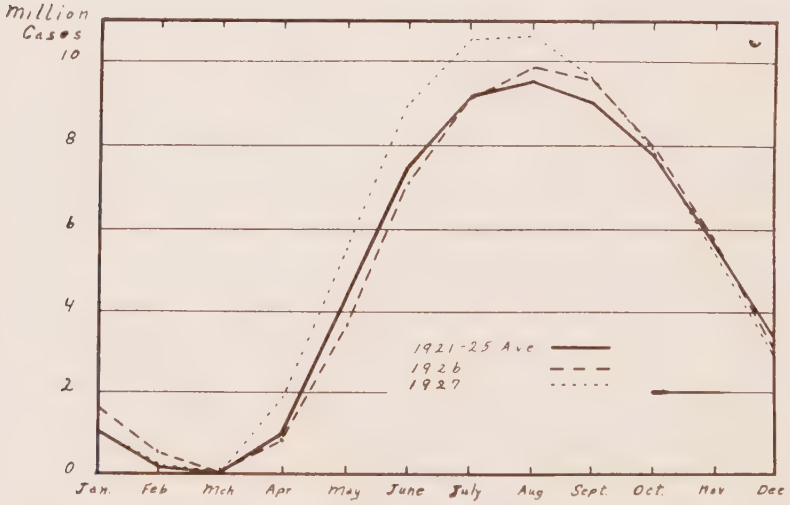

Fig. V. Cold storage holdings of case eggs in the United States on the first of each month (1921-1925 average and 1926 and 1927.)

and July. About August first eggs begin moving out of storage, moving most rapidly in October, November and December, and continuing until about March first when storage rooms are practically empty. This movement is practically the opposite of the seasonal changes of production and is the result of an adjust-

ment between production and consumptive demand. The importance of cold storage for eggs can be appreciated from the fact that approximately 12 percent of the total annual production of eggs is stored.[10]

The movement of storage eggs varies in response to price changes because each individual engaged in storing eggs attempts to buy and sell to his greatest advantage. The aver-

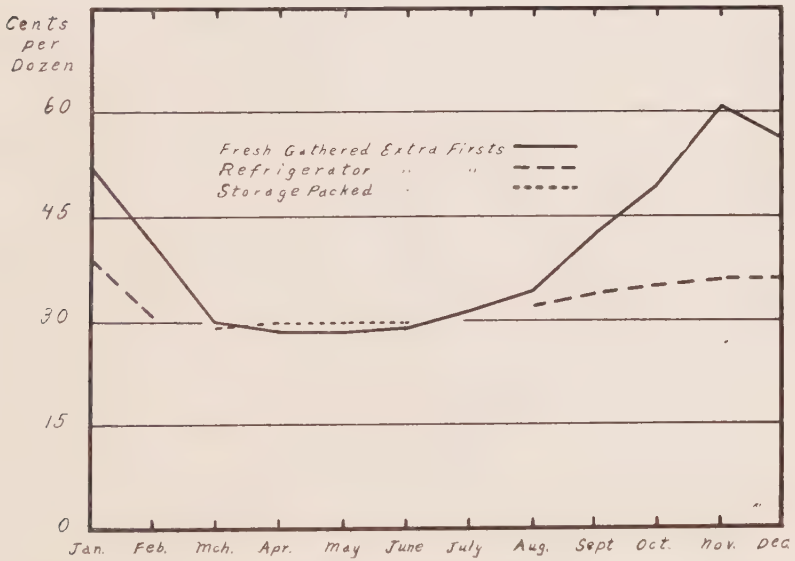

Fig. VI. Monthly average wholesale prices of Fresh Gathered Extra First Eggs. Refrigerator Extra Firsts and Storage Packed Extra Firsts at New York City (1921-1925 average. Data from New York Produce Review and American Creamery.)

age storage holdings of shell eggs in the United States by months for the years 1921 to 1925 are shown in Figure V. Movements into storage are most rapid during seasons of low prices and out of storage movements are most rapid in seasons of high prices. Prices of storage eggs tend to rise and fall with prices of fresh eggs but within a much narrower range, see Figure VI.

[10] U. S. D. A. Farmers Bulletin 1378, page 5.

Storage packed eggs are those going into storage. They must be of good quality and packed in good condition. During the months of April, May and June, it is not unusual to find them quoted higher than many of the fresh gathered eggs on the market. Reports of dealers visited indicate that Kentucky eggs usually are of suitable quality for storage during only a couple in cold storage always is a strengthening factor in the spring fresh egg market but eggs of high quality must be produced if the full benefit of such demand is to be realized.

PRICE COMPARISONS

Price comparisons which throw some light on the problems of egg marketing are those of seasonal variations, cyclic price movements, grade price ranges, comparisons of prices paid by various classes of dealers and price comparisons between states or districts. The lack of uniform grading practices and rather limited market reporting services make such comparisons somewhat difficult.

Seasonal Variations. A decided seasonal movement in egg prices is the usual thing, as illustrated by Figure VII showing the monthly farm price of eggs in Kentucky and five neighboring states. The winter months of November, December and January are those of highest prices while the lowest prices are experienced in the late spring and early summer. This is a natural result of the seasonal production of eggs and is due principally to the law of supply and demand working in the fresh egg market. Seasonal variations are reduced somewhat thru the effect of cold storage practices.

Cycles. Historical price studies have proved that the prices of many products tend to run in cycles. Such cycles usually are the result of producers over-expanding their business in periods of favorable prices and curtailing operations in periods of less satisfactory prices. Various economic forces affect the length and violence of these price movements.

Eggs and poultry are joint products but are not always affected in the same way by economic forces. Cyclic movements of prices are less likely to be pronounced under such conditions

than in cases where only one product is involved. While there is some tendency for egg prices to move in cycles it is not sufficiently definite to warrant special consideration in this connection. It might be said in passing, however, that since 1880, eggs have moved thru successive periods of rising prices, averaging 3.4 years in length, and periods of falling prices of about two years.[11]

Adaptation of price data for the last one hundred years[12] indicates that swings in the purchasing power of eggs, from high point to high point, have varied in length from six years to seventeen years and averaged nearly ten years.

Market Quotations. To be of real significance, market price quotations must be made by grade. Lack of uniformity in grades results in confusion when local grade terminology is used for each market. New York quotations for any particular day may give prices for twenty or twenty-five different grades or classes of eggs with a price range of from ten to thirty or more cents per dozen. At the same time some other important market may have only six or eight grade classifications. It, therefore, is difficult to make price comparisons between markets.

Storage Eggs and Fresh Eggs. The market price of high-grade fresh eggs usually is higher than that of storage eggs. During four months in 1920 the retail price of strictly fresh eggs averaged 9.6 cents over that of storage eggs.[13] During seven months of 1921 the retail price of fresh eggs averaged only 2.1c over the price of storage eggs. The average monthly range in price between "Fresh Gathered Extra Firsts" and "Refrigerator Extra Firsts" in New York City for the years 1921 to 1925 was 13.3 cents per dozen.[14]

The average difference between, "Best western fresh eggs," excluding "Extras" and "Best storage firsts to finest," during the years, 1902-1910, is given below. The amounts by which

---

[11] Farm Economics No. 22, March 21, 1925, N. Y. State College of Agriculture, Ithaca, N. Y.

[12] "A Hundred Years of Poultry and Egg Prices and Profits," Reliable Poultry Journal, September, 1921.

[13] Report of Joint Commission of Agricultural Inquiry, Part IV, pages 201-202.

[14] Data from New York Produce Review and American Creamery.

yields of corn following these clover crops were; in the former continuous corn culture, 63.8 bushels; 60 bushels in the 4-year rotation, and 76 bushels in the 3-year rotation.

After nine years of cropping in various rotations without the return of manure or fertilizers and with all crops harvested, the following yields of corn were obtained this year in the different rotations:

	Bushels per acre
Corn-wheat clover	90
Corn-wheat-orchard grass	75
Corn-wheat-soybeans	66
Corn-soybeans-wheat	53

In the soybean rotations, a winter cover crop is used preceding the corn.

Seeding Legumes on Established Bluegrass Sod. Seedings of sweet clover, white clover and common lespedeza, respectively, were made on plots in a field of bluegrass, near Lexington, which had been seeded in the fall of 1920. The stand of bluegrass was good, but the growth not vigorous enough for good pasturage. Satisfactory stands and fair growth of lespedeza were secured, but contrary to what probably would usually be expected, the plants did not mature enough seed to give satisfactory reseeding. The stand secured and the growth made with each of the three legumes was better on pastured than on unpastured areas. The results are not extensive enough to determine, in general, whether satisfactory stands and growth of white or sweet clover can be secured by seeding in old bluegrass pastures in Kentucky which are lacking in vigor but have a fair stand of bluegrass. However, they do indicate that considerable difficulty is to be expected in such attempts and suggest that lespedeza is a much safer legume than the other two for such use.

Lespedeza. Lespedeza was sown with several different grasses in 1927 to study its effect upon the vigor and stand of the grasses. In the Bluegrass region there has been some

6.6 cents per dozen eggs or 13.9 percent of the retail selling price. Margins on strictly fresh eggs are somewhat larger than on lower grades because of the greater risk involved in retailing them.

Comparison with other states. Most of the egg receipts in eastern markets come from the Middle West. It is, therefore, of interest to compare the market value of Kentucky eggs with those from neighboring states to the South, North and West. Market quotations for the purpose are not readily available but the monthly estimates of farm prices secured by the United States Department of Agriculture reflect market values quite accurately.

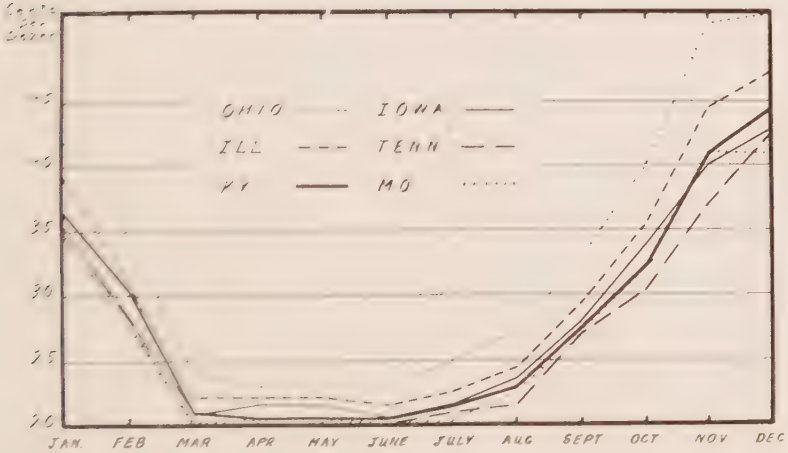

Fig. VII. Farm price of eggs in Kentucky and five neighboring states (1923-1927 average.)

From Figure VII it will be seen that Ohio, with her numerous industrial cities and more accessibility to eastern cities, has a better market for eggs than Kentucky. The monthly average farm price of eggs in Ohio for 1923 to 1927 was consistently higher than the farm price in Kentucky, ranging from 2.4 cents above the Kentucky price in May to 10.2 cent above in November and averaging 4.9 cents above for the period. The price

of Illinois eggs was above that of Kentucky eggs, also, and averaged two cents above.

Distance from market handicaps Missouri eggs in a price comparison with Kentucky. The farm price of eggs in Missouri averaged 0.9 cents below the price in Kentucky for the period, 1923 to 1927. During this period the average farm price of Tennessee eggs ranged from 0.2 cents to 3.8 cents below the Kentucky farm price and averaged 1.3 cents below.

Kentucky could improve her showing in price comparisons by the production of higher quality eggs.

COOPERATIVE MARKETING

Early developments in cooperative egg marketing were in the form of "egg circles" thru which a few producers would arrange to bring their eggs together for the purpose of marketing. Usually the eggs were packed in cases and sent by express to a central market. The amount of grading which was done varied between circles but the simplest of grading was customary. This method of cooperative selling was successful in some cases but many times the labor and difficulties involved, more than offset the advantages gained.

Experience has shown that successful cooperative marketing requires the support of a sufficient number of producers who are primarily interested in marketing the same product. Because egg production is in the nature of a sideline to other branches of farm activity in most sections of the country, it is natural that cooperative egg marketing on a large scale, found its origin in the specialized poultry areas of the Pacific and Atlantic Coasts. On the Pacific Coast the movement has progressed until, in 1926, fourteen associations in the three coast states handled 2,086,507 cases of eggs or about 68 percent of all eggs sold cooperatively in the United States.[17]

About 56 farmers' associations in this country, with more than 46,000 members, were engaged in the cooperative marketing of eggs in 1926. Nearly all these associations have been developed since 1913 and many of them since 1921. More than three million cases of eggs were sold cooperatively in the

[17] "Cooperative Marketing of Poultry Products 1920-1926." U. S. Bureau of Agricultural Economics, September, 1927.

United States, for about $30,000,000, in 1926. California cooperatives lead all other states in point of volume of business. Seven associations in that state handled over one million cases of eggs. About 792,000 cases were sold cooperatively in Washington, 611,000 in Missouri, 178,000 in Oregon and 74,000 in Minnesota.

Marketing eggs from the farm flocks of the Middle-west, cooperatively, presents some different problems from those encountered in intensive poultry producing regions. The task of assembling eggs from a large number of farms where they are produced in small numbers is apparent. In Minnesota local creameries furnish concentration points for the eggs of the community. In Missouri many local farmers' clubs have been organized and are in a position to handle the local supply of eggs. Arrangements are made sometimes for merchants to act as agents for cooperative associations in receiving eggs from the farms. The problem of local assembling points has not been solved so easily in other states.

The development of cooperative egg marketing in Kentucky has been very limited. A number of egg circles were organized but they were short lived. County poultry associations have sold hatching eggs cooperatively in several instances but this movement seldom has included market eggs. Cooperative stores owned and operated by the Farmers' Educational and Cooperative Union, handle eggs but upon essentially the same basis as other local merchants. One or two attempts to market eggs cooperatively on a large scale, have been made but they have not materialized.

Plans for cooperative marketing of eggs in Kentucky must be developed with the understanding that eggs are produced by farm flocks, in comparatively small numbers per farm and that the State is well supplied with produce dealers and local merchants who handle eggs quite effectively and will continue to do so until some better system is devised.

PRINCIPAL PROBLEMS IN MARKETING

In economic studies such as the one upon which this bulletin is based, it seems desirable to get the viewpoint of individuals

actively engaged in the trade, as to the principal problems with which they are faced. It is well also to analyze data and draw conclusions from a more disinterested point of view. An endeavor was made to learn from each dealer interviewed, the nature of his problems and of the principal difficulties encountered in the trade. Suggestions for possible improvements also were secured.

Eighteen of the twenty-nine merchants visited, reported the poor quality of eggs received to be their chief problem. A number of problems were included under the heading of poor quality, such as the care of eggs, frequency of deliveries, interior quality, cleanliness, allowing roosters to run with hens thruout the season, lack of uniformity in size and shape of eggs, the breeds of poultry kept, the feeds used and the proper housing of poultry. Two merchants stated that the small size of eggs received was their greatest problem but that other factors of quality were satisfactory. One complained directly of too rigid grading by buyers.

Eighty-seven definite statements of problems in the egg trade were given by the forty-two dealers visited. Only three dealers claimed to have no problems of particular importance. Sixty-nine of the eighty-seven statements were directly related to the lack of quality of eggs. Twenty dealers considered the small size of eggs to be a major problem and five more expressed the same trouble in saying "too many leghorn eggs." It is almost the universal opinion of Kentucky produce dealers that leghorn eggs from farm flocks run smaller in size than the eggs from heavier breeds. Dealers claim they are from one to three ounces per dozen lighter than eggs from other breeds.

Fourteen dealers reported infrequent gathering and delivery of eggs as a principal cause of poor quality, seven more complained of the lack of care given to both hens and eggs while 16 expressed it in terms of "two many dirty eggs." Six dealers recommended the production of infertile eggs as a means of improving quality. Four dealers, or about 10 percent, stated their problem definitely as one of grading. Many more expressed themselves in regard to grading eggs but did not bring

it up as a principal problem. Other problems were varied in nature, one of the most interesting being the competition in egg buying of fourth-class postmasters.

The compensation of fourth-class postmasters is based upon the sale of waste papers, money order fees and the cancellation of stamps thru the office. For cancellations under $75 per quarter the postmaster receives an amount equal to 160 percent of the stamps cancelled,[18] for the next $100 he receives an amount equal to 85 percent of the cancellations and above that, 75 percent. The postmaster employed on this basis, who buys eggs in limited quantities and ships them to central markets by parcel post, actually gets the transportation free at the expense of the postal department. Under such circumstances a competing produce dealer finds himself in a peculiar and none too pleasant situation. This is happening in a number of localities in Kentucky. Parcel post shipments from all states to New York City in 1924 amounted to about 51,000 cases.[19]

POSSIBLE IMPROVEMENTS IN MARKETING

Improvements in the marketing of Kentucky eggs can best be made along the lines of quality production and better marketing practices. High quality is desirable because it increases demand, gives greater opportunity for profit to both producers and dealers and gives consumers a better product.

Producers. The burden of improvement, it seems, falls mostly upon the individual producer, but the burden of encouraging and assisting him falls upon the dealer in poultry products. Improvements to come from the producer are mainly, better care of eggs and poultry, better housing, careful feeding, penning of roosters, more frequent sale of eggs and breeding for egg production and egg size.

The relative need for these improvements may be indicated by the proportion of dealers or merchants suggesting them.

---

[18] Rules governing the compensation of postmasters. U. S. Postal Department.

[19] U. S. D. A. Yearbook, 1924.

Improvement	Suggested by 29 Merchants	Percent of 42 Dealers
Better care of eggs and hens (housing, feeding, holding eggs, etc.)	48.3%	40.5%
Penning roosters	6.9%	16.7%
Breeding (for weight of birds and size of eggs)	27.6%	40.5%
Cooperative marketing	3.4%	2.4%
Developing a special market	6.9%	0.
Holding hens until after the spring lay	0.	7.1%

Merchants. The opportunities for improvements open to the country merchants are four in number: 1. Better care in the handling and holding of eggs. 2. More careful and universal candling and grading. 3. Buying eggs on the basis of grade. 4. Educating the farmer to better production methods.

Greater care in handling should eliminate such practices as leaving the eggs in open boxes and cases where they collect dust and dirt, keeping eggs near the stove in winter and in other than the coolest place possible in summer. A general practice of candling among storekeepers would do much to improve the quality of Kentucky eggs.

Buying eggs by weight or grade, combined with candling, must be practiced fairly generally in order to be successful. Educating the farmer to better production methods is difficult if no premium is offered for the greater effort expended.

Produce dealers. Granted that improvements in egg marketing must be put into effect largely by the individual producers, the incentive must come from the produce trade or, in truth, from the ultimate consumer who prefers quality eggs. Ten dealers expressed the needs definitely in terms of educational programs, and eleven suggested standardization and buying on grade as the practical way of making such programs effective.

Opportunities open to produce dealers are: 1. Emphasizing quality; 2. Encouraging the use of standard grades; 3. Encouraging the use of better breeding stock; and 4. Cooperating with other dealers in improving conditions. The first three can best be a accomplished thru the purchase of eggs on the basis of grade. Buying on grade is not as simple as it sounds, however.

As previously stated, one of the largest and most progressive dealers in the State made an attempt to buy from producers on the basis of grade several years ago, but was forced to give it up because his competitiors did not cooperate. In spite of this the manager of the firm still feels that it was a great mistake to stop paying for eggs on the basis of their quality.

In one section of the State five or six large dealers in interlocking territory made individual statements that they would like to buy on grade if their competitors would do likewise. If they were sincere in these statements there is hope for the future. Here lies an opportunity for a creditable piece of work by a trade association or public agency in getting these men together and working out some form of agreement which would be satisfactory to all. Some movements of this kind already have been started in Kentucky and it is likely that the future will bring more of them. In selling, produce dealers usually grade eggs. It should be comparatively easy for these dealers to adjust buying grades to their selling grades, especially with the development and use of United States Standards.

CONCLUSIONS

1. The problem in Kentucky's poultry industry is that of improving the quality of eggs sold. It has seemed, theretofore, of special importance to study the methods of operation followed by those engaged in the industry and the principal problems confronting them.

2. The United States has experienced an increase in the per capita consumption of eggs during the last thirty-five years but increases in the future are likely to take place less rapidly than they have in the past.

3. The seasonal production of eggs does not coincide with consumption. High points in production come in March, April, May and June while high points in consumption seem to occur in March and in the fall and winter months of October, November and December. Normally the fall and winter months are periods of high prices.

4. Receipts of Kentucky eggs at New York City reach their peak in March and April while the peak of total receipts comes in April and May.

5. The spread between local and central market prices of eggs is largest in the fall and winter months.

6. Storage holdings of eggs tend to absorb fluctuations in receipts and to distribute the trade output according to demand. Demand for fresh eggs for consumption, however, does not permit the elimination of seasonal changes in prices.

7. Merchants buy eggs primarily to secure sale for their merchandise rather than because of expected profit from the eggs handled. They base their buying prices on nearby markets while produce dealers usually consider eastern market quotations as the basis for prices paid.

8. Large dealers operating several branch houses in a limited area have an advantage over local dealers in making up carload shipments of eggs.

9. The direct sale of eggs to hotels or restaurants is impracticable for most producers.

10. Existing marketing channels are well established and fill an economic need. They doubtless will continue to do so until replaced by more satisfactory methods. Any improvements in marketing must be brought about by influencing the practices of existing agencies or by assuming their obligations.

11. Kentucky eggs average higher in price than Tennessee or Missouri eggs but lower than Indiana and Ohio eggs.

12. The purchasing power of eggs shows some tendency toward cyclic movements. Changes in purchasing power, however, do not recur with sufficient regularity to make them particularly significant.

13. The receipts from the sale of poultry products form a much larger portion of gross farm income in sections of Kentucky where farm incomes are comparatively low than in sections where incomes are higher.

14. Possible improvements in Kentucky's poultry industry which are open to producers and dealers may be classified as

improvements in production practices and improvements in marketing practices.

Production Improvements.

(a) The maintenance of quality in eggs is chiefly a matter of controlling temperatures, odors, cleanliness and the time involved in the marketing process. Producers have some control over all these factors while the eggs are in their possession. Penning roosters after the hatching season will help to insure good quality eggs.

(b) Breeding for egg production during the periods of seasonally high prices should net returns.

(c) More careful breeding of the American breeds of poultry in Kentucky, probably would improve the average size of eggs. This is not entirely a question of purebred fowls but of breeding larger and more productive strains of the fowls now kept.

Marketing Improvements.

(a) The production of quality products by the farmer should be met by an opportunity of receiving pay for his extra efforts. Trading in products strictly on the basis of quality will accomplish this. The universal use of standard grades for both eggs and poultry would be a decided improvement over present methods. Most produce dealers recognize the advisability of a more extensive use of grades as a basis of purchase price but the cooperation among them which is necessary to bring this practice into general use has not been developed.

(b) When eggs of high quality are produced in sufficient volume, satisfactory market outlets may be obtained thru express shipments to wholesale markets, but it is not practicable for the farmer keeping a small flock. Roadside marketing sometimes offers sales opportunities.

(c) The development of trade with southern markets is one of the opportunities open to Kentucky poultrymen. Direct competition from Tennessee and Missouri will be encountered

but can be met on a quality basis. The winter resorts of Florida demand a quality product but offer good market opportunities.

(d) Closer at home is the eastern Kentucky coal field as a market for eggs, now being supplied largely from Missouri and Indiana. Kentucky farmers or dealers may do well to investigate this market carefully before looking elsewhere.

(e) Market information and its wise use in reference to market demands and tendencies is needed among farmers and dealers in this State.

(f) Cooperative marketing of eggs holds an opportunity for Kentucky farmers only if a sufficient volume of high quality eggs, coming from interested poultrymen can be maintained. The problem of assembling a sufficient volume of eggs at a reasonably low cost is one of the limiting factors in cooperative marketing development.